

The Examiner is respectfully requested to consider and enter the following amendments:

IN THE CLAIMS:

Please amend Claims 1-7, 9-12, 18 and 19, as follows:

③ 1. (Twice Amended) A diffractive optical element, comprising:

[a pair of diffraction gratings each of which has a saw-toothed sectional shape, said pair of diffraction gratings] a diffractive grating portion having a pair of diffractive gratings, said pair of diffractive gratings differing in dispersion from each other, and said pair of [diffraction] diffractive gratings confronting each other through a space of a refractive index of 1,

wherein a maximum optical path length difference occurring in said pair of [diffraction] diffractive gratings [with the space] with respect to each of at least two wavelengths is [integer] m (integer) times [an associated] the wavelength, and values of m in the two wavelengths are the same.

2. (Twice Amended) A diffractive optical element, comprising:

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cont.

[a pair of diffraction gratings each of which has a saw-toothed sectional shape, said pair of diffraction gratings] a diffractive grating portion having a pair of diffractive gratings, said pair of diffractive gratings differing in dispersion from each other, and said pair of [diffraction] diffractive gratings confronting each other through a space of a refractive index of 1,

wherein a maximum optical path length difference occurring in said pair of [diffraction] diffractive gratings [with the space] with respect to each of at least two wavelengths is [integer] m integer times [an associated] the wavelength, and values of m in the two wavelengths are the same, and peak portions and valley portions of said pair of [diffraction] diffractive gratings are formed in a chamfered shape.

3. (Twice Amended) A diffractive optical element, comprising:

[a pair of diffraction gratings each of which has a saw-toothed sectional shape, said pair of diffraction gratings] a diffractive grating portion having a pair of diffractive gratings, said pair of diffractive gratings differing in dispersion from each other, and said pair of [diffraction] diffractive gratings confronting each other,

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wherein a maximum optical path length difference occurring in light passing through said pair of [diffraction] diffractive gratings with respect to each of at least two wavelengths is [integer] m (integer) times [an associated] the wavelength, and values of m in the two wavelengths are the same, and peak portions and valley portions of said pair of [diffraction] diffractive gratings are formed in a chamfered shape.

4. (Twice Amended) A diffractive optical element, comprising:

[a pair of diffraction gratings each of which has a saw-toothed sectional shape, said pair of diffraction gratings] a diffractive grating portion having a pair of diffractive gratings, said pair of diffractive gratings differing in dispersion from each other, and said pair of [diffraction] diffractive gratings confronting each other through a space of a refractive index of 1,

wherein a maximum optical path length difference occurring in said pair of [diffraction] diffractive gratings [with the space] with respect to each of at least two wavelengths is [integer] m (integer) times [an associated] the wavelength, and values of m in the two wavelengths are the same, and peak portions of said pair of [diffraction] diffractive gratings are formed in a chamfered shape.

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cont.

5. (Twice Amended) A diffractive optical element, comprising:

[a pair of diffraction gratings each of which has a saw-toothed sectional shape, said pair of diffraction gratings] a diffractive grating portion having a pair of diffractive gratings, said pair of diffractive gratings differing in dispersion from each other, and said pair of [diffraction] diffractive gratings confronting each other through a space of a refractive index of 1,

wherein a maximum optical path length difference occurring in said pair of [diffraction] diffractive gratings [with the space] with respect to each of at least two wavelengths is [integer] m (integer) times [an associated] the wavelength, and values of m in the two wavelengths are the same, and valley portions of said pair of [diffraction] diffractive gratings are formed in a chamfered shape.

6. (Twice Amended) A diffractive optical element, comprising:

[a pair of diffraction gratings each of which has a saw-toothed sectional shape, said pair of diffraction gratings] a diffractive grating portion having a pair of diffractive gratings, said pair of diffractive gratings differing in dispersion from each other, and said pair of [diffraction] diffractive gratings confronting each other,

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wherein a maximum optical path length difference occurring in light passing through said pair of [diffraction] diffractive gratings with respect to each of at least two wavelengths is [integer] m (integer) times [an associated] the wavelength, and values of m in the two wavelengths are the same, and peak portions of said pair of [diffraction] diffractive gratings are formed in a chamfered shape.

7. (Twice Amended) A diffractive optical element, comprising:

[a pair of diffraction gratings each of which has a saw-toothed sectional shape, said pair of diffraction gratings] a diffractive grating portion having a pair of diffractive gratings, said pair of diffractive gratings differing in dispersion from each other, and said pair of [diffraction] diffractive gratings confronting each other,

wherein a maximum optical path length difference occurring in light passing through said pair of [diffraction] diffractive gratings with respect to each of at least two wavelengths is [integer] m (integer) times [an associated] the wavelength, and values of m in the two wavelengths are the same, and valley portions of said pair of [diffraction] diffractive gratings are formed in a chamfered shape.

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9. (Amended) A diffractive optical element,

comprising:

[a pair of diffraction gratings each of which has a saw-toothed sectional shape, said pair of diffraction gratings] a diffractive grating portion having a pair of diffractive gratings, said pair of diffractive gratings differing in dispersion from each other, and said pair of [diffraction] diffractive gratings confronting each other through a space of a refractive index of 1,

wherein a maximum optical path length difference occurring in said pair of [diffraction] diffractive gratings [with the space] with respect to each of at least two wavelengths is [integer] m (integer) times [an associated] the wavelength, and values of m in the two wavelengths are the same, peak portions of one of said pair of [diffraction] diffractive gratings are formed in a chamfered shape, and valley portions of the other of said pair of [diffraction] diffractive gratings are formed in a chamfered shape.

10. (Amended) A diffractive optical element,

comprising:

[a pair of diffraction gratings each of which has a saw-toothed sectional shape, said pair of diffraction gratings] a diffractive grating portion having a pair of diffractive gratings, said pair of diffractive gratings

cont. differing in dispersion from each other, and said pair of [diffraction] diffractive gratings confronting each other, wherein a maximum optical path length difference occurring in light passing through said pair of [diffraction] diffractive gratings with respect to each of at least two wavelengths is [integer] m (integer) times [an associated] the wavelength, and values of m in the two wavelengths are the same, peak portions of one of said pair of [diffraction] diffractive gratings are formed in a chamfered shape, and valley portions of the other of said pair of [diffraction] diffractive gratings are formed in a chamfered shape.

11. (Amended) A diffractive optical element for diffracting light of a specific order with a high diffraction efficiency, comprising:

[a pair of diffraction gratings, said pair of diffraction gratings] a diffractive grating portion having a pair of diffractive gratings, said pair of diffractive gratings differing in dispersion from each other, and said pair of [diffraction] diffractive gratings confronting each other through a space of a refractive index of 1,

wherein a maximum optical path length difference occurring in said pair of [diffraction] diffractive gratings [with the space] with respect to each of at least two wavelengths is [integer] m (integer) times [an associated]

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the wavelength, and values of m in the two wavelengths are the same, wherein said integer is the number of said specific order.

12. (Amended) A blazed type diffractive optical element, comprising:

[a pair of diffraction gratings, said pair of diffraction gratings] a diffractive grating portion having a pair of diffractive gratings, said pair of diffractive gratings differing in dispersion from each other, and said pair of [diffraction] diffractive gratings confronting each other through a space of a refractive index of 1,

wherein a maximum optical path length difference occurring in light passing through said pair of [diffraction] diffractive gratings [with the space] with respect to each of at least two wavelengths is [integer] m (integer) times [an associated] the wavelength, and values of m in the two wavelengths are the same.

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18. (Amended) An optical system, comprising: a diffractive optical element according to [claim 13] any one of claims 2-7, 9 and 10; and
a lens system,

[wherein a length of a flat plane in a direction of grating arrangement of a grating surface lies within the